

Danforth Hills Coal Field

Location

The Danforth Hills coal field is located within Rio Blanco and Moffat Counties in northwestern Colorado.

Stratigraphy

The first major mapping of the geology with detailed descriptions of the coal was by Gale (1910). More detailed mapping and measurements of the coal deposits were completed by Hancock (1925) and by Hancock and Eby (1930). Thicknesses of units are from Hancock and Eby (1930).

Table. Stratigraphy—Danforth Hills coal field.

Stratigraphic units	Depositional environment	Thickness (ft)
Mesaverde Group	nearshore marine; coastal plain	
Williams Fork Formation	major coal	4,500-5,000
Iles Formation	minor coal	1,350-1,600
Mancos Shale	marine	5,000

Coal Deposits

The Black Diamond coal group of the Iles Formation contains coal as thick as 14 ft (Hancock and Eby, 1930). The Williams Fork contains three major coal zones (groups). In ascending order, these are the Fairfield coal group (as thick as 29 ft with a parting), and the Goff and Lion Canyon coal groups (each generally less than 10 ft thick, but as thick as 18 ft) (Hancock and Eby, 1930). The Fairfield is the most important coal group and contains seven coal zones. The Fairfield coal group contains at least 26 coal beds greater than 5 ft thick; 20 of these coal beds have a maximum thickness greater than 12 ft (Brownfield and others, chap. M, this CD-ROM).

Coal Quality

The coals are mainly high-volatile B and C bituminous; average ash contents are 3.7–10.0 percent in the Iles and 2.2–9.6 percent in the Williams Fork; average sulfur contents are 0.4–0.6 percent in the Iles and 0.3–1.4 percent in the Williams Fork (Murray, 1981). Brownfield and others (chap. M, this CD-ROM) contains a detailed discussion of the quality of the Fairfield coal group coals.

Resources

Hancock and Eby (1930) reported an estimated original coal resource on a coal-group basis of 10.6 billion short tons in areas with less than 3,000 ft of overburden for the Meeker quadrangle. Landis (1959) reported an estimated original coal resource on an individual-bed basis of 7.9 billion short tons in areas under less than 3,000 ft of overburden for the Danforth Hills coal field. Hornbaker and others (1976) reported an estimated original coal resource of 10.5 billion short tons in areas under less than 6,000 ft of overburden for the Danforth Hills coal field.

The Fairfield coal group of the Williams Fork Formation (Hancock and Eby, 1930) contains many potentially economic coal beds in the Danforth Hills coal field and was the only unit newly assessed during the present study (see Brownfield and others, chap. M,

this CD-ROM). The Fairfield coal group contains an estimated original coal resource of about 21 billion short tons in the identified and hypothetical resource categories.

Production History

Coal is currently mined by surface methods in the Danforth Hills coal field at the Colowyo mine, operated by Kennecott Corporation. Coal production averaged about 4.5 million short tons per year from 1991 to 1995 from the upper part of the Fairfield coal group (G. Sullivan, written commun., 1997—compiled from Mine Safety and Health Administration data).

References

- Gale, H.S., 1910, Coal fields of northwestern Colorado and northeastern Utah: U.S. Geological Survey Bulletin 415, 265 p.
- Hancock, E.T., 1925, Geology and coal resources of the Axial and Monument Butte quadrangles, Moffat County, Colorado: U.S. Geological Survey Bulletin 757, 134 p.
- Hancock, E.T., and Eby, J.B., 1930, Geology and coal resources of the Meeker quadrangle, Moffat and Rio Blanco Counties, Colorado: U.S. Geological Survey Bulletin 812-C, p.191–242.
- Hornbaker, A.L., Holt, R.D., and Murray, D.K., 1976, 1975 summary of coal resources in Colorado: Colorado Geological Survey Special Publication No. 9, 17 p.
- Landis, E.R., 1959, Coal resources of Colorado: U.S. Geological Survey Bulletin 1072-C, p. 131–232.
- Murray, D.K., 1981, Upper Cretaceous (Campanian) coal resources of western Colorado, *in* Epis, R.C. and Callender, J.F., eds., Western Slope Colorado: New Mexico Geological Society Guidebook, 32nd Field conference, p. 233–239.